## REMARKS

Claims 1-13 are pending in the present application. Reconsideration of the claims is respectfully requested.

### 35 U.S.C. §103, Obviousness

The Examiner has rejected claim 1-5 and 8-13 under 35 USC §10 as being unpatentable over Dharia et al. (US Pub. No. 2002/0123337) in view of Thornburn et al. (US Pat. No. 6,898,428). This rejection is respectfully traversed.

In rejection claim 1, the examiner writes:

> Dharia discloses a system for data transmission and reception comprising (abstract):
>
> (a) a wireless broadcast system that broadcasts outgoing data from a data network to a plurality of users; and (Fig. 1, element 123, 101, 111-n, MS):
>
> (b) a wireless data return path system that receives incoming data from said plurality of users and provides the incoming data to said data network, wherein the wireless data return path system further includes (page 1, [0005]; Dharia teaches an up link and down link for receiving and sending traffic between users and BTS):
>
> one or more wireless collector systems receiving data from a predetermined set of the plurality of users (page 1, [0005]; Dharia teaches the use of collectors to broadcast traffic);
>
> Although the system disclosed by Dharia shows substantial features of the claimed invention, it fails to disclose:
>
> wherein said broadcast system includes one or more broadcast repeaters that receive data at one frequency and retransmit said data at another frequency, and wherein the broadcast system incorporates satellite data transmission technology in a terrestrial line-of-sight environment
>
> one or more return path repeaters that receive data at one frequency from one or more predetermined wireless collector systems and retransmit said data at another frequency.
>
> However, in an analogous art, Thorburn teaches:
>
> wherein said broadcast system includes one or more broadcast repeaters that receive data at one frequency and retransmit said data at another frequency, and wherein the broadcast system incorporates satellite data transmission technology in a terrestrial line-of-sight environment (abstract, Fig. 1. col. 2, line 52 – col. 3, line 46; column 2, lines 33-60; Fig. 4j and col. 5, lines 17-25)
>
> one or more return path repeaters that receive data at one frequency from one or more predetermined wireless collector systems and retransmit said data at another frequency (Fig. 4d and col. 4, lines 42-49)
>
> one or more broadcast repeaters and one ore [sic] more return path repeater

systems receiving data from one or more predetermined wireless collector systems (Fig. 4j and col. 5, lines 17-25); and

Given the teachings of Dharia and Thorburn, a person having ordinary skill in the art at the time of the invention would have recognized the desirability and advantages of adding repeaters and using terrestrial line-of-sight broadcasting in order to increase reliability.

However, careful examination of Thorburn reveals that it does not in fact teach the features ascribed to it by the Examiner. Specifically, Thorburn teaches:

> FIG. 1a illustrates details of the exemplary satellite communication system 10. The communication satellite 11 comprises a return channel 20 and a forward channel 30. The return channel 20 comprises receive and transmit antennas 21, 22, and the forward channel 30 also comprises receive and transmit antennas 21, 22. The improvements provided by the present invention are implemented in the return and forward channels 20, 30.
>
> Each of the gateways 12 are coupled to the Internet or other terrestrial network 16 by way of the network 17. The plurality of subscriber terminals 13 are coupled to the Internet or other terrestrial network 16 by way of the satellite 11, the one or more gateways 12 and the fiber optic network 17. The subscriber terminals 13 communicate with the Internet or other terrestrial network 16 by way of the satellite 11 to make requests for data using a return path 14 comprising the return channel 20 of the satellite 11. Data derived from the Internet 16 or other terrestrial network 16 is forwarded to the subscriber terminals 13 by way of the fiber optic network 17, a selected gateway 12, and a forward path 15 through the forward channel 30 of the satellite 11.
>
> Thus, the satellite 11 provides for bi-directional communication between the subscriber terminals 13 and the gateways 12. The satellite 11 provides a "last mile" connection from the Internet 16 or other terrestrial network 16 to the subscriber terminals 13.
>
> In a normal operational scenario, the communication system 10 is designed to operate using its full bandwidth, which supports multiple gateways 12. However, early on in the lifetime of the system 10, the number of subscriber terminals 13 is far less than the number that may be supported by the system 10.
>
> Heretofore, in order to properly operate the system 10, all required gateways 12 would need to be operational at commencement of system operation. For example, a system 10 implementing six-time frequency reuse, requires six gateways 12 for full-up operation. This is expensive due to the cost of the gateways 12, and in light of the fact that typically few subscriber terminals use the system 10. The full system bandwidth capacity is typically not required when the system 10 is initially made operational. However, in accordance with the principles of the present invention, the system 10 may be made operational without using all required gateways 12, and may be implemented using from one to all of the gateways 12 supported by the satellite 11.

This is accomplished using switch networks 25, 37 in accordance with the present invention in the return and forward channels 20, 30. The switch networks 25, 37 are described with reference to FIGS. 2-5. Use of the switch networks 25, 37 allows use of a limited number of gateways 12 using less than full-system bandwidth.

The switch networks 25, 37 allow complete beam coverage from the satellite 11 using a minimal subset of gateways 12. As capacity requirements of the system 10 increase, additional gateways 12 are provided, switches and/or filters and/or switching multiplexers of the switch networks 25, 37 are reconfigured, and the capacity of the system 10 is increased to support more gateways 12 and subscriber terminals 13. The total bandwidth of the system 10 is used initially, and frequencies are reused with added gateways 12. (Col. 2, line 52 – col. 3, line 46)

FIG. 4d shows a simple configuration of a system 10 in accordance with the present invention using two gateways 12 servicing four beams. FIG. 4d shows a forward repeater in accordance with the present invention (implemented by the satellite 11) that transmits data from the gateways 12 to users (subscriber terminals 13) in various regions (regions 1-4). (Col. 4, lines 42-49)

FIG. 4j shows a conventional return link repeater (implemented on the satellite 11, which transmits data from the users (subscriber terminals 13) and the gateways 12. This configuration is the complement of the configuration shown in FIG. 4c. Data from regions 1 and 2 are multiplexed in a first multiplexer 51a and transmitted to the first gateway 12 (gateway 1). Similarly, data from regions 3 and 4 are multiplexed in a second multiplexer 51b and transmitted to the second gateway 12 (gateway 2). (Col. 5, lines 17-25)

Applicants apologize for the rather lengthy quote. However, as can be seen above, nowhere in any of the sections cited by the Examiner does Thorburn teach the use of broadcast repeaters that receive data at one frequency and retransmit said data at another frequency. Instead, Thorburn uses either a relay-type device which simply relays the signal of a particular wireless communication or a signal booster device that accepts the signal and amplifies the signal at the same carrier frequency. For example, in Thorburn the use of the word "repeater" is used to describe a system which "boosts" the signal strength, but never changes the actually carrier frequency. This booster-type "repeater" does not have the same characteristics and functionality as the broadcast repeaters recited in claim 1.

Therefore, even assuming the Examiner's proposed combination of Dharia and Throburn for the sake of argument, the resulting combination still would not include all of the limitations

of claim 1.

Because claims 2-5 and 8-13 depend from claim 1, they are distinguished from the references for the reasons stated above.

The Examiner has also rejected claims 6 and 7 under 35 USC §103 as being unpatentable over Dharia in view of Thorburn and further in view of Chu et al. (US Pat. No. 5,890,055). This rejection is also respectfully traversed.

Because claims 6 and 7 depend from claim 1, they are distinguished from the references for the reasons explained above.

Therefore, it is respectfully asserted that the rejection of claims 1-13 under 35 USC §103 has been overcome and should be withdrawn.

**CONCLUSION**

It is respectfully urged that the subject application is patentable over references cited by Examiner and is now in condition for allowance. Applicant requests consideration of the application and allowance of the claims. If there are any outstanding issues that the Examiner feels may be resolved by way of a telephone conference, the Examiner is cordially invited to contact David W. Carstens at 972.367.2001.

The Commissioner is hereby authorized to charge any additional payments that may be due for additional claims to Deposit Account 50-0392.

Respectfully submitted,

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By: Christopher P. O'Hagan
Christopher P. O'Hagan
Registration No. 46,966
Attorney for Applicant

CARSTENS & CAHOON, LLP
PO Box 802334
Dallas, TX 75380
(972) 367-2001 *Telephone*
(972) 367-2002 *Facsimile*